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Landmark Software Case

Court Overrules Patent Office, Qualifies 'Mental Process' Ban

WASHINGTON, D.C. – The question of the patentability of computer programs appears to be headed for a comparatively quick decision, as a result of a number of developments in Washington last week.

The first development was a patent appeal decision which held that computer programs could be proper subject matter for patents, a holding directly opposite to the viewpoint expressed by the Patent Office in its guidelines issued last month.

The decision came in the case of Prater and Wei, in which a computer program to select the most optimal 10 readings (out of the 18,756 possible selections of 10 that are available as a result of 20 spectrographic readings) had been turned down for a patent. The Court of Patent Appeals, in granting the disputed patent, paid particular attention to the so-called "Rule of Abrams" which has been the basis for claiming that functions that could be handled mentally were not proper subject matter for patenting.

The court looked at the derivation of the rule and pointed out that it had never been properly adopted and that it relied on questionable precedents. It also pointed out that the rule did not differentiate between processes which were capable of being handled *only* mentally – as had been the case in the Abrams decision – and processes which could be handled mentally, but could *alternatively* be handled without human intervention.

Computer programs appear to be one means for carrying out without human intervention, processes which are alternatively mental operations.

After the decision, the Patent Office issued a statement saying that it agreed that if the ruling were upheld, then computer programs would be patentable – provided they were otherwise qualified. However, the Patent Office said that it would ask the court to reconsider.

Such a reconsideration could well be based on the fact that in the original Patent Office brief, the court was urged to leave any decisions about the patentability of

(Continued on Page 14)

DoD Adopts USA Standard Cobol; All Compilers Must Comply By '70

Special to Computerworld

WASHINGTON, D.C. – The Department of Defense, the government's largest user of computers, has adopted the new USA Standard Cobol. All Cobol compilers delivered to the department after Jan. 1, 1970 must either provide for the full standard or for one of the new standard subsets.

Dr. Herbert Grosch, director of the National Bureau of Standards computer center, said the action was "a definite step toward the standardization of Cobol within the federal government because the department represents the majority of the computers used in the government today."

A Cobol audit system, for validating conformance of a compiler to the standard, is under development by a triservice group. The department has set Dec. 15 as a target date for identifying the best features of Navy, Air Force, and USA Standards Institute audit routines. These will be updated to conform with the standard and consolidated into a single audit system.

Don R. Brazier, deputy assistant secretary of state, said that departments and agencies that need an audit system now should consider using "currently available audit routines," apparently a reference to the Cobol test developed by the Navy.

The USA Standard Cobol, officially designated X3.23-1968, was adopted by USASI Aug. 23.

The Defense Department Cobol Working Group has adopted three subsets of the standard, which it calls A (low), B (low-intermediate), and C (high-intermediate).

Copies of the new USA Standard Cobol are expected to be available about Jan. 1.

This new input station holds data in a delay line buffer and then puts it on a self-contained magnetic tape in blocks.

60% Saving Seen With Input Unit

CHELMSFORD, Mass. – A new keyboard to magnetic tape unit "provides 60% savings in data entry costs compared with any of the other manufacturers' competitive products," according to Ray Arruda, marketing manager for Ty-core, Inc., the manufacturer. Available for delivery in early spring of 1969, the unit produces cassettes (miniature tape cartridges). These cassettes are then read by a Data Accumulator to produce computer compatible tapes. The tapes are completely compatible with IBM equipment, says the manufacturer.

The keyboard unit stores the information in a delay line buffer with a standard capacity of 560 EBCDIC characters. The manufacturer says the size of the delay line can be expanded with very minor costs at the user's request. This buffer allows the operator to re-key the data under verify mode to verify the correctness of her original entries, and to make corrections character by character. The data in the fer is then written onto the cassette for

(Continued on Page 6)

On the Inside

Sorting Time Cut by Up to 75% Through Use of New Algorithm

LOS ANGELES – A Disk Operating System new sort which runs at two to four times the speed of the IBM Sort/Merge and has twice the capacity, has been announced by Programmatics, Inc. The sort uses standard DOS job control language and standard DOS sort control cards.

Currently the new sorting algorithm handles fixed length records only, but the developer intends to expand the sort to include variable records and Operating System compatibility.

The company has taken the complete DOS Sort/Merge and simply added an algorithm developed by Programmatics President David Ferguson. All other features remain the same. If variable records need to be sorted, or if merging is desired, the standard IBM code is used.

The company considers this an important step in the separate pricing of hardware and software. According to Ferguson, "Although antitrust and patent legislation are important issues to the software industry, separate pricing will come about because of economic justification.

"It is the responsibility of the software industry to demonstrate the cost savings to the consumer. Software produced in a noncompetitive environment tends to be substandard and the real cost to the user is the cost of running with inefficient software. If we can demonstrate what it costs the user to run with 'free' software supplied by the manufacturer, we can compete with that 'free' software," he said.

Performance of DOS Sort/Merge vs Pi Sort
(as supplied by Programmatics)

No. of Records	20K	50K	100K
DOS Sort/Merge			
IBM predicted timings	5:00	11:00	23:00
Actual times	4:00	10:00	21:00
No. of disk drives	1	2	4
Pi Sort			
Actual times	1:40	4:30	10:30
No. of disk drives	1	1	2

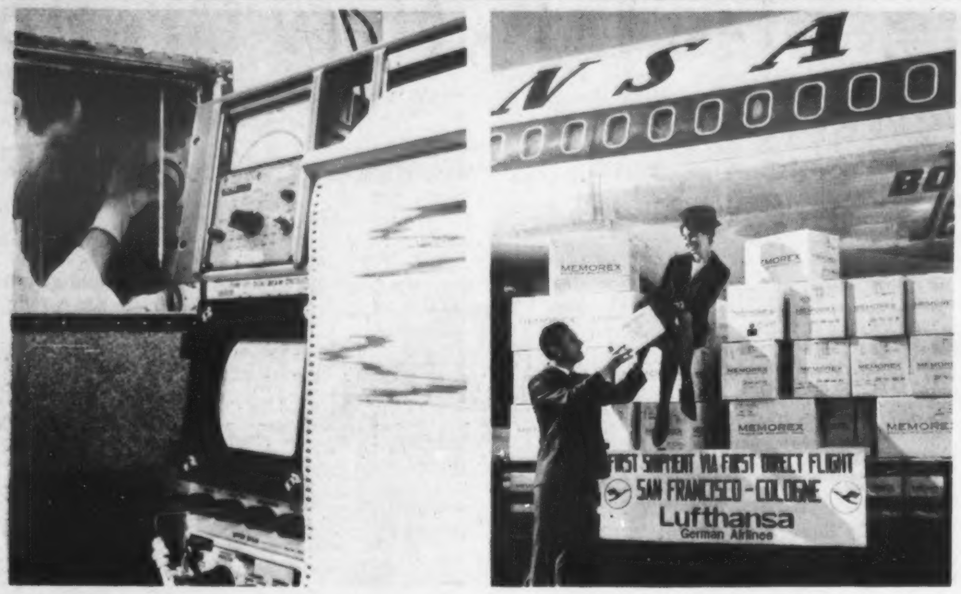
Times are in minutes and seconds; Records are 80 characters, blocked 10.

Tapes used for file I/O were 90Kc Model/2400s. The mainframe system was a 360/40 with 131K and without multiprogramming.

The performance of the prototype sort is shown in the chart. The figures bear out the company's claims regarding the sorting algorithm's performance. The user also can save a great deal of disk space while sorting, enabling the user to sort larger files without the need for more disk drives.

The first installations are scheduled for February, 1969, and the system is available on a one time lease basis for $4500.

When asked about a possible reaction from IBM, Ferguson said, "The availability of such packages is in the best interests of IBM's customers and consequently is, in the long run, in the best interests of IBM."



Memorex Wins Sales Award

Memorex Corp., winner of the Sales and Marketing Executives-International award for worldwide marketing excellence, cites its quality control procedures, left, and the fact that it ships everything by air, right, as the two keys to its success. The award citation read, "For initiating limited resource, pay as you go world marketing that competed successfully with well financed giants."

Bryant Protest Is Rejected by GAO

WALLED LAKE, Mich. – The General Accounting Office last week rejected a protest [CW, July 31] against the method of awarding contracts for a complete computer system for the Air Force Accounting and Finance Center at Denver, Colo.

The protest, lodged by L. Richard Caveney, director of government marketing for Bryant Computer Products, stated, "Under the specifications given, independent peripheral manufacturers were unable to compete for bids." Caveney claimed that the timing was such that these independents would be unable to have their products ready in time for the benchmarking and live testing required by the Air Force.

He further contended that the cost of such live testing and benchmarking, prior to acceptance of a bid, prohibited most such manufacturers from even entering a bid, except as a subcontractor for an off the shelf item.

According to the GAO, the "schedule provided in the request for proposals for benchmarking and the submission of proposals was not unduly restrictive since the competitive nature of the computer industry is such that the products of peripheral manufacturers are known." The agency further stated that, "Even if there was not sufficient time provided . . . such factor does not affect the legality of the procurement."

In regard to Caveney's comment on the cost to the manufacturer, the GAO held that, "it was stated (in a previous decision) that although the bidder's cost of qualifying a product tends to restrict competition, individual agencies are vested with discretion to determine the extent of competition which may be required. . . ."

In answer to Caveney's protest about the inability of component manufacturers to bid on components only, the GAO responded, ". . . such questions raise a number of problems . . . [and] GSA is unable to determine what the government's responsibility should be in this respect."

But the GAO concluded by stating, "The entire question . . . is currently under study."

Automation Seminar Is Held for Bankers

Special to Computerworld

ATLANTA – Today's small banker with an eye on automation ought to take a second look at second generation computers. Now is a good time to buy one, lease one, or join a cooperative that has one.

This was the major conclusion of a seminar for southeastern bankers held here. The seminar was sponsored by the International Automation Co., a division of TLW Computer Industries of Atlanta. Entitled "New Horizons in Bank Automation," the program was designed specifically for the managements of small to medium sized banks which have not automated.

Making a Good Loan

Among the panelists were Dr. Fred Hammer, president of Leasco Systems & Research Co.; Dr. Robert L. Gray, general manager of the Northern Indiana Financial Service Corp.; Tom L. Williams, president of TLW; and David C. Zimmerman, executive vice president of TLW.

Dr. Hammer, a former banker, told the bankers that if they could make a good loan they could learn all there is to know about automation.

One of the panelists, Carl Brady, president of the Douglas County Bank of Omaha, disagreed. Brady said making a good loan was more difficult.

There were other disagreements in the free ranging program but general concurrence on these items:

- Prices on used second generation equipment and support programs make these items real bargains today.
- This equipment can carry a small bank a long, long way – even to its own credit card.
- Neglect in this area, while the competition moves, will not be fatal to the small banker but, as studies show, his share of the market will be reduced.

TLW President Tom L. Williams, left, confers with J.M. McRae, center, president of the First National Bank of Gainesville, Ga., and Dr. Robert L. Gray, general manager of the Northern Indiana Financial Service Corp., during the seminar.

Fall Joint Computer Conference Opens Dec. 9

SAN FRANCISCO – The Fall Joint Computer Conference opens here Monday, Dec. 9, and runs through Wednesday, Dec. 11. The conference will consist of 47 sessions at which 157 papers will be given. There will be at least 150 exhibits at the Civic Center.

Pre-registration will be held Sunday, Dec. 8, from 2-8 p.m. at the San Francisco Hilton Hotel.

Further details may be obtained from: A.G. Asmus, 210 Summit Ave., Montvale, N.J.

Full advance details on the conference will be published in next week's *Computerworld*.

CDC Users Reorganize Into New Group

PALO ALTO, Calif. – The final act of the CDC Fall Joint Users Conference was to reorganize the structure of its organizations. The conference disbanded the original groups (Swap, Pool, Co-op, Exchange) and replaced them with a single new group, Focus (Forum of Control Data Users).

Only one major user group of the original groups did not elect to join Focus. This group, VIM, is the users of CDC 6000 and 7000 equipment. A representative was appointed to be liaison between the two groups, and a main frame group has been formed within Focus for those who wish to maintain dual membership. The organizations hope that communications between them will function as smoothly as within each group.

The primary objectives of Focus are to coordinate the activities of members by disseminating information relative to CDC hardware and software, and to provide communications between the users and the manufacturer.

The constitution prohibits restricted communications and opens membership to all interested persons.

Specifically, information released to Focus must be disseminated to the public immediately, preventing Focus from becoming a secret sounding board for Control Data.

Voting membership is open to any user of CDC equipment and anyone with a firm order for CDC equipment. Anyone who is not a user but is interested, may become an associate member by petitioning the executive council. Any association which is interested may petition the executive council for a voting membership if it is qualified.

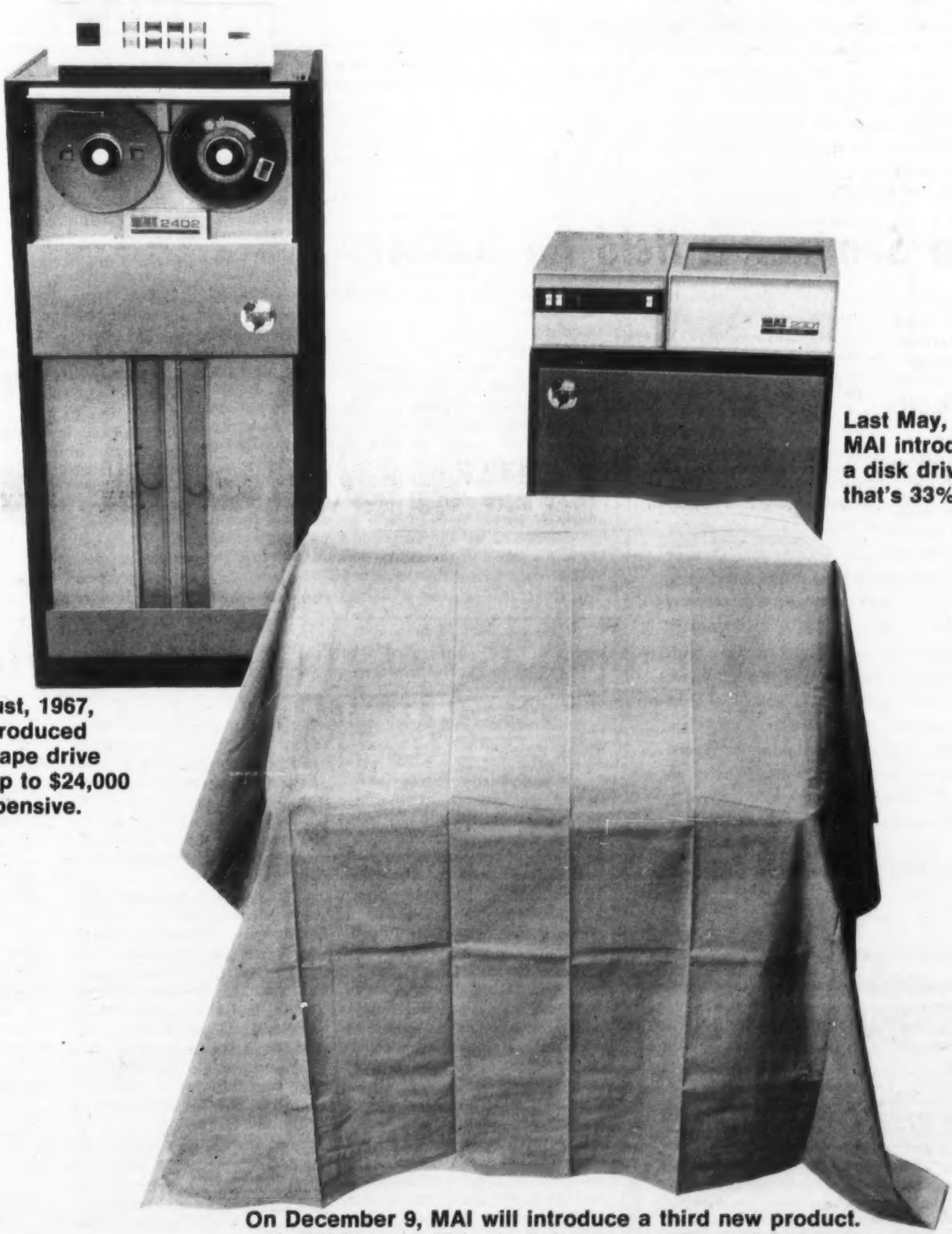
Any voting member who fails to be represented, either by proxy or in person, at two consecutive semi-annual plenary meetings shall lose his membership. This restriction does not apply to associate members. It is also possible to lose membership by failing to fill out the annual questionnajre within 30 days prior to the next plenary meeting.

W. Schuyler Stevenson has been elected president of Focus. Other officers include Tod Olson, vice president, and James L. Hatch, executive secretary and treasurer.

Four permanent committees were appointed: Standards, Peripheral Hardware, Conference Planning, and Nominations.

Mainframe groups may be established by any five voting members who use a main frame unit.

Focus may be contacted by writing to: Control Data Corp., Focus, Office of Users Group Liaison, 3145 Porter Dr., Palo Alto, Calif. 94304.



Editorials

Unknown Friends

One of the facts of life and one often much regretted is that we sometimes do not know who our friends are until too late. Such is the case in the computer field with the passing last week of Judge A.M. Smith. Here was a man whose ability to comprehend the essential complexities and simplicities of computer software has produced results that will be a help to many in the industry for years to come. Whether or not the ruling in Prater and Wei, published on the day of his death, is fully upheld, it seems certain that the clarity of his thought and expression will be used as a basis for the final decision.

Judge Smith, previously unknown to us, made this important contribution to our industry out of his sense of devotion to both the technical and legal professions. He did it against the advice of his doctors and it is now impossible to thank him personally. However, he did leave a request that, in lieu of flowers, contributions should be made by his friends to the American Heart Association. *Computerworld* suggests that such contributions might well be a way of saying "thank you" to Judge Smith – as well as to other of our many, many unknown friends.

A Sharp Focus

The Control Data user groups have always had an unusual amount of individuality and independence. Co-op, for instance, regularly published reliability figures gathered from each installation. For many years, it was the only public source of such information. Control Data made no attempt to interfere with this, although it might, in some cases, have been harmful to the company in a marketing sense. In fact, it was a distinct plus.

A similar independent and enlightened attitude, both by the user groups and the manufacturer behind them, can be seen in the new Focus constitution. The open membership policy and the restriction against confidential information (which tends to establish privileged in-groups) will be strong safeguards to the right of all users. It is hoped that other user groups will watch the progress of Focus and muster up the courage to follow its example.

Computerworld feels that Focus is in focus.

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Judge Smith's Patent Ruling

'Rule of Abrams' Is Challenged

Whether or not computer programs are patentable has been hotly disputed for some time, and the final answer still has not been given. The Patent Office believes that they are not, and bases its belief upon "the meaning of the word 'process' as employed in the applicable statutes, and on the well established doctrine that processes which can be performed solely by mental acts do not constitute patentable subject matter."

The Court of Patent Appeals, in its judgment on Prater & Wei, takes issue with both of these points and holds that computer programs may constitute patentable matter. Here are the arguments the court used, condensed from the late Judge Smith's opinion (see story on page 1).

The patentability of claims containing so-called "mental steps."

The precedent which here has been principally relied on as supporting the rejection of claims of this type is Abrams.

Abrams' invention related to a method for prospecting for petroliferous deposits. It is important to note that Abrams disclosed no *means* whatever for performing the claimed steps of calculation and comparison. Thus, Abrams disclosed a claimed process including steps which could *only* be performed in the mind insofar as the teachings of the application were concerned. Abrams therefore presents a significant difference (to which we shall refer again) from the factual situation in the present case in which the teachings of the specification provide a full disclosure of apparatus for carrying out the steps in the claim *without requiring any steps to be performed in the human mind.*

Additional teaching is also provided in the present application that the steps can *alternatively* be performed on other apparatus, i.e., a properly programmed digital computer, which would equally permit the process to be performed without involving steps performed in the mind by those skilled in the art informed of appellants' novel discoveries.

As part of the argument for patentability advanced by Abrams, his counsel composed the following three "rules" which he suggested should be considered by the court, it being his obvious hope to persuade the court that the facts of his case brought him within his rule "3":

1. If all the steps of a method claim are purely mental in character, the subject matter thereof is not patentable within the meaning of the patent statutes.
2. If a method claim embodies both positive and physical steps as well as so-called mental steps, yet the alleged novelty or advance over the art resides in one or more of the so-called mental steps, then the claim is considered unpatentable for the same reason that it would be if all the steps were purely mental in character.
3. If a method claim embodies both positive and physical steps as well as so-called mental steps, yet the novelty or advance over the art resides in one or more of the positive and physical steps and the so-called mental step or steps are incidental parts of the process which are essential to define, qualify, or limit its scope, then the claim is patentable and not subject to the objection contained in 1 and 2 above.

The court made clear that it did not consider it necessary for its decision to adopt the proposed rules saying:

> From such examination of the decisions as we have been able to make, the suggested rules appear to accord with them, *but it is unnecessary for us arbitrarily to go beyond the requirements of the instant case.*

Much confusion in subsequent interpretation of the Abrams decision has been caused by people misreading the decision as conferring judicial sanction upon the "rules" formulated and proposed by Abrams' attorney. This confusion has arisen because the court, after initially declaring there was no necessity to embrace the rules, apparently adopted Rule 2 towards the later part of the opinion. We believe this later statement was advanced not to show adoption of the rules by the court but merely to point out that even if, *arguendo*, the court had adopted his rules, Abrams would still not have prevailed in his particular fact situation.

It is also important to consider the two cases, Don Lee and Halliburton, considered to validate the proposed "Rule 2."

It will be seen that [the decision in Don Lee], which appears to be the genesis of the doctrine of the unpatentability of so-called "mental step" claims, is not only unsupported by any citation of precedent but in its inception was directed to subject matter that was not even novel.

†††

The second point, the meaning of the word "process," and the court's summary will be condensed in next week's Computerworld.

Letters to the Editor

Brandon Replies

To the Editor:

I am compelled to write you to defend my personal reputation from the "vitriolic attack" you described in your Nov. 13 issue. I want to take an opportunity to outline the facts to rebut Mr. Mayer, without prejudice to the legal recourse which I have and which I may have to use to protect shareholders in our company from further damage.

1. Aside from the defamatory nature of the statements made, I object on principle to the use of the not inconsiderable weight and prestige of IBM to support an inaccurate and damaging position. To do this without opportunity for rebuttal is inexcusable, but as long as we do not own an IBM 360/40, we will not be able to rebut the statements in the same privileged forum. The facts of he case are as follows:

2. Dr. Jack Wolfe, developer of the Brandon test, is a doctor of mathematics and education. His principal qualification for test development, aside from his extensive experience in data processing, is that he developed a successful, validated test for the Service Bureau Corp., a subsidiary of IBM!

3. The test was validated by us to our satisfaction. It has subsequently been validated a number of times by responsible organizations. These organizations are clients of our company, and we will continue to protect their identity, although the validation facts are available.

4. Mr. Mayer's apparent antipathy started when our publishing company refused to provide him a free copy of the test, last spring. Our records indicate that he talked to three different people, and that several letters were sent, all in an attempt to save $6.50. It is unfortunate that IBM is the *only* major organization who felt that it could not afford to pay for a simple copy of the test.

5. My personal economic position is available to you. The economic facts appear to indicate that if I am indeed a "moneygrubber," the test is not the principal source of the money:

a. We have not yet made a profit on the test, and we will be pleased to provide you with our profit and loss statement. As long as the test sells for $6.50, and it includes the scoring, we will not make a profit on it. Our motives are partly altruistic and partly promotional.

b. My personal income from Brandon in 1968 will be less than my aggregate income from a competitive organization in 1963!

c. Our rate of profits (operating ratio) has averaged around 5%, by comparison, for example, to IBM's rate of 12.5%.

If Mr. Mayer, or IBM, can prove or even cite a single instance of unprofessional or unethical behavior on my part in the data processing industry, I will be happy to acknowledge it in public. Otherwise, I believe they owe me an equally public apology.

Dick H. Brandon
President
Brandon Applied Systems
New York

(More Letters on Page 5.)

Computerworld welcomes comments from its readers. Preference will be given to letters of 250 words or less. *Computerworld* reserves the right to edit letters for purposes of clarity and brevity. Letters should be addressed to: Editor, Computerworld, 60 Austin St., Newton, Mass. 02160.

The View From Codasyl

•Cobol Isn't Meant to Be the Answer to Everything

By Richard C. Kurz

We hear of machine-independent programming languages and of Common Business Oriented Language (Cobol) very often and from many different people. Everyone seems to have his opinion about Cobol – about its utility and about its future. Seldom do I hear it discussed in what I consider its proper perspective. More often the Cobol devotee is pictured as insistent that, "Cobol is the answer."

Perhaps it is. But what, you may ask, is the question?

To understand "what the question is" is to understand the Conference on Data Systems Languages (Codasyl), the organization responsible for the development and extension of Cobol.

Codasyl is an informal and voluntary organization of interested individuals, supported by their institutions, who contribute their efforts and expenses toward the end of designing and developing techniques and languages to assist in data systems analysis, design, and implementation. John L. Jones of Southern Railway is chairman of the executive committee. Warren G. Simmone of U.S. Steel is chairman of the programming committee. I am presently chairman of the programming language committee, while T.W. Olle of RCA heads up the systems committee.

In 1959, the following general objective was stated:

> The current experience of users of electronic data processing equipment indicates that a major problem in the efficient utilization of such equipment lies in the inability to state the *data processing application* in such a way that computer programs are developed and maintained with a minimum of time and programming effort.
>
> A common business oriented language, independent of any make or model of computer, open ended, and stated in both an English notation and a narrative form, *would do much to solve or to ameliorate this problem.* Such a language would also simplify and speed up the solution of the related problem of training personnel in the design of data processing systems and in the development of computer programs for such systems.

Remember that the problem the group addressed was not simply how to write a machine-independent program or how to add to an already staggering myriad of programming languages, but was the problem of "stating the *data processing application.*" "A common business oriented language would *do much* to solve the problem," not solve it.

Since the original meetings, the Codasyl organization has undergone several reorganizations, committee name changes, and personnel turnovers. The objectives, however, as stated in 1959, have survived and have indeed proven to be valid observations. Cobol was meant to begin to relieve the "problem of stating the data processing application."

What Cobol Has Become

The most important quality of the Cobol language in my mind is that in fact it is; it exists and is widely used. Cobol is the major programming language in more than 50% of the third generation installations in the

Richard C. Kurz

$5000-$10,000 rental range and in two-thirds of the installations in the $15,000-$30,000 rental range.

These installations are experiencing a degree of machine independence presently unattainable through any other language applied to business. True, they are not totally machine independent. Any one of these users can tell you long stories of indignity and trauma he has personally experienced in affecting a conversion from one hardware configuration to another. It often seems inordinate unless you inspect the alternatives: reprogramming, retraining, reimplementing, reinventing your personal wheel. To date, the Cobol idea has been proven. Research and near future development will improve the execution idea.

Cobol is constantly being compared to other languages designed to fill the same need. The basic difference appears to me to be, from a practical viewpoint, the fact that Cobol is already filling the need with very promising success.

Certainly a valid criticism of the Codasyl system to date has been the obscurity surrounding the questions: "How do I suggest something to Codasyl?" and "How can I become an active member of Codasyl?" (From reading the Cobol document, one could only write an inquiry to the U.S. secretary of defense, who seemed from the cover to be responsible for the whole thing.) Information of this nature may be obtained by contacting the executive committee chairman: John L. Jones, Assistant Vice President, Southern Railway System, 125 Spring St., S.W., Atlanta, Ga. 30303.

That is what I think Cobol has come to be.

How Cobol looks to its developers, the Codasyl organization, is certainly one of the most important views to examine. As is reflected in Codasyl's purpose, Cobol can be looked upon as a step only toward a very ambitious end. It is most certainly viewed as a success. This is a view borne out by the user percentages quoted and reinforced by the wide and active interest displayed in its further development.

Codasyl sees Cobol as a worldwide language. It also sees its responsibilities as including continued maintenance of the current specification and development of new features to fill the needs created by new hardware and software techniques. All of this activity is in the rather confined area of actual programming. To comprehend the rest of the responsibilities you must have some conception of Codasyl's data systems application.

Where will Codasyl go from here? The recent Codasyl reorganization is a good example of the plan of attack in this other area. Appointment of committees for language, planning, and systems, and putting their chairmen on the executive committee affords the executive body the necessary feedback and closeness to the problem to administer effectively.

This organizational structure and the high level of activity within that structure demonstrate certainly that Codasyl is alive and that it is living up to its responsibilities in:

- Maintaining its current product – Cobol.
- Extending Cobol to satisfy new needs in that one area of the problem programming.
- Expanding the scope of what it specifies, to begin to include some of those things we have been thinking about – less procedurally oriented language, job stream language, and debugging tools.

Cobol is not Codasyl. Cobol will not answer all of your problems. Cobol is a tool that will today allow you to take the first step in solving the "data system problem" along with Codasyl.

This article by Richard C. Kurz of NCR was condensed from a paper he presented to the American Management Association Conference on Software Cost Effectiveness.

Report Analyzes Factors Needed To Succeed in Software Field

BOOKS

Growth Opportunities in Computer Software, *Robertson & Associates, Inc., Newark, N.J., 28 pp., spiral bound, $150.*

This report provides a brief review of the software market, with particular emphasis placed on application packages. As an example of a company engaged in this market, the report reviews the background, current activities, and business prospects for Automatic Data Processing, Inc.

The report indicates that the software market is growing more rapidly than the hardware market and that the future is very bright for firms offering proprietary software packages.

The report analyzes the factors needed for success in the software package field and provides a chart giving the characteristics of the principal software firms.

The authors apparently conducted a series of interviews with software company officials and computer industry observers. Because of this, some confusion arises from differing definitions for the terms used.

For example, the report makes the common mistake of referring to the dollars paid as salaries to programmers and analysts employed by users as though they were part of the sales available to the software industry. The report states: "Software and other computing service revenues have been estimated to be more than hardware sales in 1967. Industry experts predict a $6 to $7 billion market by 1970 compared to $5 to $6 billion for hardware." Only a small part of these so-called software "revenues" actually was sales made by software or programming firms. The vast majority was salary paid to full time employees of user organizations.

Letters to the Editor

What, No Lower Case?

TO THE EDITOR:

NOV. 6 ISSUE STATED THAT SSI COMPUTER CORP. HAD APPLIED FOR NEW REGISTRATION OF ITS COMMON SHARES. ACTUALLY, SSI CAME OUT ABOUT OCT. 28. SSI IS A SUBSIDIARY OF AMERICAN FUND WHICH MAY BE BOUGHT BY AMERICAN EXPRESS. IN ANY CASE THE STOCK HAS BEEN ACTING BEAUTIFULLY.

THIS LETTER WAS WRITTEN ON GE'S TIME SHARING SERVICE TO SHOW ITS VERSATILITY.

A.J. BATT
APPLICATIONS SPECIALIST
GENERAL ELECTRIC
RESEDA, CALIF.

Thanks for your CAPITAL letter. Ed.

EDPromotions

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W.W. Boyd

R.D. Hamill

P.H. Messing

Delay Line Memory Makes Terminal More Versatile

(Continued from Page 1)

storage. The cassettes are later read by the Data Accumulator directly from the keyboard unit and written onto computer compatible tape in either 7 or 9 track mode.

The system, called either the Series 7500 or 9500 depending on the recording mode, permits the operator to produce any size records she wishes, by the optional inclusion of an end of record key on the keyboard. Use of this key writes the record onto the cassette regardless of its current length. The unit can also be interfaced to any of the major computers directly, as an input terminal.

Additional control programs, other than the single standard one, are available at about $100 each, and there is no practical limit to the number of such programs possible.

The Data Accumulator can handle up to 20 keyboard units, and produces output on any standard reel of computer tape up to 2400 feet in length.

The cassettes are specially tailored for the unit and are available from the manufacturer for $10 each. They have a capacity of 1000 80-character records and use certified computer tape from one of the major manufacturers, with very high recording strength.

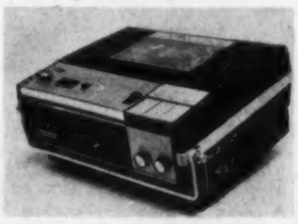
The prices of the units are dependent on the size of the order and the optional rental/purchase agreement. On a purchase basis, the keyboard units cost $4995 each, with a 10% discount in orders of 20 or more. The Data Accumulator costs $8900, which is balanced by the discount on large orders. The keyboards rent for $99 a month and the Data Accumulator rents for $180 a month.

New Products

Transmission System

A new punched card transmission system, the Digi-Data System 40, provides a means for transmitting IBM card information over telephone lines for computer entry via magnetic tape. Error detection is designed into the equipment and error correction is performed by the operators. The system uses the standard Bell dial network and Data-Phones. Wats lines may also be used. The receiving station operator loads the magnetic tape, polls the transmitting stations, removes the tape, and forwards it to the computer. The transmitting station operator acknowledges the call, sends his cards, handles error correction, and then terminates the call. Magnetic tape unit options are available for 7 or 9 treck computer compatibility. Digi-Data Corp., 4315 Baltimore Ave., Bladensburg, Md. 20710.

Magnetic Tape Unit



A new portable magnetic tape unit, Model DV-315, eliminates the need for high speed paper tape punches and readers in many special purpose systems using small computers as the control element. It may be used for field maintenance and also can be operated as a conventional audiotape recorder. Start up procedures may be voice recorded on the same tape that is used to load the operating program. Similarly, conditions existing at the time of a system failure may be voice recorded along with a core dump for future analysis. Standard 5" reels of 1/4" tape are employed with a speed of 7-1/2 ips. Interfaces for most commonly used small computers such as the PDP-8 and DDP-16 series are packaged as part of the unit. Data is recorded using phase modulation techniques and the basic transfer rate is 3.5 Kbps. A unit with a bit serial digital interface is priced at $1500. Volume discounts are available. Delivery is from stock to four weeks. Betatech, Inc., P.O. Box 345, Bedford, Mass. 01730.

Computer Tape

A new magnetic computer tape, JTC, has a polyester film backing for strength and flexibility. It is available with nine differently colored, adhesive backed color rings for identification purposes and is packaged in a plastic case for stacking in present libraries. Jersey Tab Card Corp., 649 Rahway Ave., Union, N.J. 07083.

Disk Pack

A new disk pack, Scotch brand 904, is compatible with the DCD 853 and 854 disk drives. The 904 has a sector disk with 33 slots (32 sectors) as compared with 21 slots (20 sectors) in the 906 disk pack, which is compatible with IBM 1311 and 2311 drives. 3M Company, Magnetic Products Div., Market Services Dept., 3M Center, St. Paul, Minn. 55101.

Magnetic Tape Storage

A new digital magnetic tape storage and speed conversion device, the Digi-Buffer, accepts and stores digital information and transmits it as required at the necessary speed and format. Information is stored on a loop of standard magnetic tape. Speeds are 0 to 200 wpm and 300 wpm. Magnetic Recording Systems, Inc. 496 Grand Blvd., Westbury, L.I., N.Y. 11590.

New $10 Million GE Center Has 5 Big Systems

INGLEWOOD, Calif. – General Electric Co. has opened a new $10 million computer complex here to provide expanded services to western customers. The new center is equipped with 5 large scale GE systems, including a GE 600 for Mark II service. Additional systems are scheduled to be installed by the end of the year and a planned expansion is due for completion next year.

Kenneth G. MacDonald, western region manager, stated that subscribers are now able to dial a local telephone number and connect with the Mark II system in Inglewood without incurring long distance line charges. The language available is Basic.

Specialized Marketing Unit Planned in IBM DP Div.

PRINCETON, N.J. – IBM has announced plans for a specialized marketing organization, called the Commercial Region, within its Data Processing Div. The new region will be headquartered here and will provide marketing services to the finance, insurance, communications, utilities, and transportation industries. W. Lee Noel has been promoted to vice president of the division and manager of the Commercial Region. Existing facilities will house the new organization.

General Automation Opens Silver Spring Office

ORANGE, Calif. – General Automation, Inc., a digital computer systems manufacturer, has opened a new sales office at 11215 Oakleaf Dr., Silver Spring, Md. Burton A. Yale, the company's vice president of marketing, has announced the appointment of Daniel N. Robinson to manage the new office.

Systems Engineering Opens Atlanta Office

FT. LAUDERDALE, Fla. – Systems Engineering Laboratories, a digital computer systems manufacturer, has opened a sales office in Atlanta. James Geers, the company's sales manager, said that the office will be managed by Robert Limbaugh who will be responsible for sales in the Southeast.

Engelhard Minerals Forms Information Services Dept.

NEWARK, N.J. – Engelhard Minerals & Chemicals Corp. has announced the formation of a Management Information Services Dept. to provide corporate management with financial, inventory control, marketing, and scientific information. The department will consist of three sections – systems and procedures, programming, and computer operations – and utilize an IBM 360/30.

Hospitals Have Differing Needs...

Two weeks ago, *Computerworld* reported on a number of hospital systems that either have, or are expected to, cut costs or improve health care.

But hospital systems, like a suit of clothes, don't fit everyone. Many hospital computer systems, probably more than 100, have been announced or proposed, but few are actually in operation. Three major systems which began operation this fall are discussed on this page by CW Assistant Editor Joseph Hanlon.

IBM's Share Hospital Accounting System (Shas) has been used to illustrate the problems of selecting a system for two reasons. It is the most widely tested of the three, so much more information about it is available, and it illustrates the two problems faced by any user of a hospital system:

- **Can we afford it?**
- **How much modification is necessary to make the package work for us?**

Modifications Necessary To Make System Work

Special to Computerworld

MILWAUKEE, Wis. – Hospital accounting and billing is such a gigantic problem that Shas, one of the largest applications packages ever produced by IBM, is not enough to cope with it without modifications and additions by individual hospitals.

"What is there is excellent," declared Ronald Willer, director of the Wisconsin Hospital Data Processing Center here. "But Shas will not produce results without the center adding to it." Willer said that he had seven programmers working for over a year making changes and additions, and he has increased the size of the package by 50%. "All of these additions are necessary," Willer emphasized, and more additions are planned.

But Willer stressed that he was not critical of IBM: "After all, they are a profit making company, not a charity." He also noted that, "IBM was very responsive to our suggestions. As a result of suggestions from our center and others, the package is now *10 times* larger than IBM originally expected – and it is 10 times more useful."

Other Shas users will have to make only some of the additions Wisconsin made because IBM is putting some of Wisconsin's additions into Shas. "But centers will still have to add to it," Willer noted.

Computerworld spoke to many people connected with the testing and development of Shas. The consensus was that Shas is excellent, but that the user definitely will have to make additions and modifications to adapt the package to his own needs. Several people also felt that IBM was not providing enough help to users in making these modifications.

Gene Gallagher, executive director of Chart, Inc., a data processing company sponsored by the Hospital Association of New York, said that Chart had developed its own accounting and billing package because it did not want to wait for Shas. But he added, "If we were starting from scratch today, we would use Shas; it's the best thing available. But we would have to make modifications, because our problems are different from those in other states." Gallagher also noted that, "IBM should be giving more help to people who want to make modifications. But IBM does not have the manpower available."

The head of one of the centers testing Shas, who refused to be quoted by name, summed up the general attitude when he said: "There are parts of Shas we don't want, and some parts are inappropriate to the way a hospital functions. But we couldn't write it ourselves, and it's the best package to come down the pike, so we'll live with it."

Kinds of Modifications

What kinds of modifications and additions must be made? Wisconsin, for example, added programs to make the package run more efficiently and to improve file maintenance ("We found that we could not get along without a file dump program," said Willer). They also added a program to prevent users at the hospitals from damaging permanent records, and they changed the method of hospital inquiry, so that it doesn't tie up the whole computer when one user asks a question.

New York has many Blue Cross plans, and an unusual insurance company billing procedure, according to Gallagher, so he would have to modify both of these.

Another test site objected to the fact that every time a patient is admitted, Shas requires that a new record be set up for him. Thus, a person gets a separate bill for each time he comes to the hospital. This means that if Shas is used for billing outpatients who make regular monthly or biweekly visits, an outpatient may get six or eight separate bills in the mail at the same time.

Finally, Willer pointed out that one of the advantages of Shas, its flexibility, also causes a problem. Hospitals don't all have to use the same standardized formats. This means that programs for reports do not exist; the user must write his own program for every kind of report he wants from Shas.

Computers Increase Costs, Hospital Council Concludes

CHICAGO – Computers would increase costs, not decrease them, for hospital accounting and billing, according to a Chicago Hospital Council study.

A shared computer system would increase costs by about half, and a stand alone computer would more than double costs for hospitals in the study.

"Most people make the mistake of saying computers will save money, when in fact they never seem to," commented Fred Green, coordinator of special studies in hospital management for the Chicago Hospital Council (CHC). "I have no doubt that it would cost the hospitals more to go to computer," he added.

Green stressed that the question of whether a hospital should switch to computers should not be based on cost alone. For example, with computers, accounting can be more accurate and more up to date, and the hospital administrator must decide how much this is worth to him, Green declared. He also pointed out that in the CHC study the entire cost of the computer and data processing center was charged to the accounting program, and that there would definitely be time available for other applications.

CHC was one of the groups testing IBM's Shas (Shared Hospital Accounting System). According to Green, CHC did a "detailed feasibility study" and then a live test in four of their hospitals. The live test ran from December 1967 through March 1968, and included two of the three Shas applications (patient billing and accounts receivable) plus their own payroll programs. They were unable to test the general ledger part of the program because of the amount of conversion that would have been involved. The Shas programs were tested on about 10% of the patients in the four hospitals. Cost estimates were based on the assumption that the system was operating at the break even point: 2400 beds. The cost of operating the data center was included.

The report, entitled "Report of the Computer Development Test" and not yet released to the public, concludes: "The cost of using a computer rather than a machine accounting system . . . is clearly greater."

CHC did not continue using Shas after the test period. Executive Director Howard F. Cook explained that the tests were run "using other people's equipment" and that the financing was not available to set up their own computation center. "It's no fault of the program," he said. "It tested out beautifully as far as we were concerned."

Cook also told *Computerworld* that CHC definitely planned to do something with shared computers, but refused to give any details.

Cost Estimates from Chicago Hospital Council Report

System cost per patient per day at three test hospitals

Hospital	A	B	C
Present	$ .62	$ .52	$ .80
Shared computer	.82	.84	1.20
Stand alone computer	1.16	1.06	1.95

Increase in cost over present system

Hospital	A	B	C
Shared computer	36%	62%	51%
Stand alone computer	87%	104%	145%

Hospitals A and B have 200-299 beds, hospital C has 100-199 beds.

Cost estimates are for the three IBM Shas programs (accounts receivable, general ledger, and patient billing) and payroll programs, and are based on a feasibility study and four months of live tests.

'Shas' Tests Completed, Implementations Begun

After a year of testing, IBM released its Shared Hospital Accounting System (Shas) Oct. 30.

Shas allows several hospitals to share a computer. It has programs for patient billing, accounts receivable, and general ledger, including cost allocation for Medicare. Participating hospitals are connected to the central System 360 facility by teleprocessing terminals, giving simultaneous access to the computer.

Industry sources estimate that about a dozen Shas systems are now being implemented.

Heavy Use Needed to Keep Costs Down

Sharing a computer allows several hospitals to split the cost, but enough hospitals must be committed to the project to make it work. *Computerworld* could not find any Shas user that had enough hospitals committed to reach the break-even point, which ranges from 2000 beds to over 5000, depending on the user.

Some groups have decided to go ahead anyway. Nebraska Blue Cross is typical: it has only one-third the necessary beds committed. Kenneth Twit, supervisor of Shas, said they went ahead because they expected to get the necessary beds eventually, "although we will have to take on a lot of small, 100 bed hospitals to do it."

But at least two Blue Cross plans that had hoped to provide Shas to member hospitals have decided not to. A representative of Blue Cross of Central Ohio explained that they needed 2700 beds to start and 3200 to break even, but they could get only 860 committed. He cited two difficulties: first, the larger hospitals already had computers and were not interested in a shared system, and second, several Catholic hospitals already had a shared system.

Blue Cross of Northwest Ohio also failed to get enough interest. L. Greer Price, Blue Cross secretary, said it would be a "wild gamble" to go ahead and hope to get enough hospitals later. "We are not willing to risk our subscriber's money on this," he added.

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But Many Systems Are Available

Light Pen Reduces Errors, Simplifies Input to System

SAN FRANCISCO – A light pen is the main input device of the Sanders Clini-Call system being installed at Kaiser Hospital here.

Although a keyboard is also used, input by touching a light pen to the face of a CRT screen is easier for persons without typing experience.

If a lab technician wants to report a test result, he has a report form displayed on the terminal. To enter the results, he touches the appropriate spot on the form with the light pen, then touches the appropriate numbers in a row of numbers displayed at the bottom of the screen.

Another use of the terminals is for placing drug orders. Kaiser is using a special drug order procedure, because of its research orientation. In a regular hospital, a physician placing a drug order would use the light pen to select the "Drug Order" form on the general index.

Next, a listing of drug categories, such as antibiotics, analgesics, etc., appears on the screen. After the desired category is selected, a complete list of all drugs available in that category is displayed on the screen. When the specific drug has been selected, a table showing minimum and maximum dosages and similar data is displayed.

```
LAB REPORT                              PATIENT 765214
                  RICHARD EDWARDS
BLOOD SUGAR
   FBS
-------------------------------------------------
   GLUCOSE TOLERANCE
        1/2 HOUR
        1 HOUR
        2 HOURS
        3 HOURS
-------------------------------------------------
CONCURRENT URINE SUGAR VALUES
        1/2 HOUR
        1 HOUR
        2 HOURS
        3 HOURS
                                      TECHNOLOGIST
-------------------------------------------------
0   1   2   3   4   5   6   7   8   9
```

Typical format for a fasting blood sugar laboratory report, as it appears on the display screen. Numerical test results are entered in appropriate spaces (shown by dashes) on the form by touching a light pen to the row of numbers on the bottom of the display.

After the drug order sequence is completed, the order is automatically routed to the pharmacy where it is printed out on an order form. Simultaneously, a printer at the requesting station prints out the order for the official signature of the doctor.

It is also possible for the doctor to choose several drugs from the initial list, and the procedure will be automatically followed for each of the drugs in the order in which they were selected.

Clini-Call consists of input/output terminals and a central processor which may be tied to a larger computer. The central processor can store short term records and the hospital's own medical forms, but overall patient histories, large tables, etc. must be stored in a larger computer or on tape. Clini-Call is compatible with IBM equipment, according to Donald Hupfer, one of Clini-Call's designers, and it will be working with an IBM system at Kaiser.

Fast Response

The system being installed at Kaiser will have 24 terminals; however, the central processor can handle up to 48, according to Hupfer. With 24 CRT's, he said, the maximum response time is usually one to two seconds.

Sanders cites several advantages of Clini-Call over other available systems:

- Using the light pen on the CRT means that it can be used by untrained personnel.
- Clini-Call has station-to-station communication; a drug order, for example, does not have to go through the main computer to get to the pharmacy.
- Since all the blank forms are stored in the central processor, only the answers to the form questions have to be stored for each patient, reducing the amount of storage needed.
- A hard copy record is available immediately to the person using the system.

A nurse uses a light pen on the Sanders Clini-Call terminal. The nurse's identification card is inserted on the left of the keyboard.

Available application areas of Clini-Call are: patient admitting, accounting and billing, administration, diet and kitchen, blood bank, pharmacy, radiology, and medical records.

Most entries into the system require the names of the patient and a doctor or nurse. At Kaiser Hospital, these will be input via the keyboard, although Clini-Call has provision for two identification card readers. The nurse inserts her card to identify herself, and the patient's card is inserted to identify him. No other identification is required, further reducing the amount of material that must be entered by keyboard.

Shared Hospital System Is Provided as Service

SCHENECTADY, N.Y. – Accounting and patient census at Ellis Hospital here are now being handled by a computer in Watertown, Mass.

Ellis is the first user of GE's Medinet. Three other hospitals will be using Medinet by January, 1969, according to Ralph Zani, Medinet marketing manager.

Medinet is a modular system currently consisting of six applications:

- Patient admission and census.
- Inpatient billing and accounts receivable.
- Outpatient billing and accounts receivable.
- Payroll and personnel accounting.
- Medical records statistics.
- Automated mental status examination.

Hospitals may use as many or as few of these applications as they desire. Ellis Hospital is using only the first two applications.

Medinet hopes to add other applications to the list and create a complete hospital information system.

All computer services are provided by two computers at Medinet's headquarters in Watertown. The hospitals have only special input teletypewriters.

Each input Teletype has a magnetic tape memory unit attached to it containing instructions for just one application. This restricts an input unit to just one application, in contrast to other systems (Sanders Clinic-Call, IBM's Misp) whose terminals can be used for many applications.

The actual data processing is done using a cycle processing technique: the computer, a GE 435, works on just one application at a time, according to a predetermined schedule. According to Zani, the computer goes through the complete set of applications several times a day.

To give the hospital immediate access, even when the computer is not processing the particular application needed, Medinet uses a second computer, a GE Datanet 30, for communications and record keeping. Thus a hospital can get a copy of a patient's bill at any time, accurate as of the last time the main computer last processed the patient billing application.

Medinet cites two advantages for its system: first, it is modular, so a hospital can take only the applications it wants, and second, it requires only a small capital investment because no computer installation is required.

Ellis Hospital has 464 beds and has installed four Medinet terminals. They had not used computers before. According to Zani, the new system will not increase costs. "Ellis feels it will at least break even," he said.

Profits Rise 15% In System Test

Special to Computerworld

NEW YORK – A 15% direct product profit increase was shown for supermarkets under an independent test of a new information management system. The stores monitored by the system showed a 16.8% profit increase over the control stores.

The system, called Cosmos (Computer Optimization and Simulation Modeling for Operating Supermarkets), was developed for the National Association of Food Chains and independently tested by Case and Co., Inc.

The system provides information about price policies, the profitability of a given item in relation to its product group, shelf allocation, display techniques, and related data on utilization of resources. Summary data is available for policy level decisions, pricing policies, product group profitability, and store performance. This information is intended to assist company management in overall analysis.

The basis for the modeling technique is the economic law stating that a positive change in the display space allocated for a product will be reflected by a positive change in the rate of sales for that product. The data necessary for operating the system is available from current manual and computer systems and is simple to convert, the association said.

The system is written in Cobol, providing extreme machine and user compatibility. The programming effort necessary to install the system in any chain is estimated to be no greater than 10% of the installation cost for the system. The system requires 32K and tape or disk for files.

Installation costs for the system are estimated to be $12,000 to $20,000 for 10 to 20 stores out of a 100 store chain. It is felt that this number would be sufficient to monitor the entire chain. Operating costs would be on the order of $4000 to $6500 a month for 10 to 20 stores, and computer times shown indicate 13 minutes of computer time per store per month on the NCR 315 used for the test. Input data preparation costs will run to about $1000 per month for the system.

According to the figures given in the report, a chain of 100 stores would recover its installation costs in a matter of months, and would show profit increases of from $282,000 to $384,000 for 10 to 20 stores annualized.

Package for Drug Firms Predicts Drug Shelf Life

Special to Computerworld

SANTA MONICA, Calif. – A new package produces assay schedules, calculates degradation rate constants, and predicts the shelf life of drugs.

The developer, EDP Technology, Inc., reports the package has been operational at a Southern California pharmaceutical company for over a year. The program is called Statis (Stability Testing Information System) and can perform the mathematical and statistical calculations needed for determining degradation rate constants and predicting shelf life of a company's drugs. Statis will produce output reports to identify those drugs which require statutory review.

The package is written in Cobol, and requires a 32K memory. The price is $15,000, which includes installation at the customer's site and a six month warranty. The system also is available on a lease basis, or as a service arrangement when the customer has no computer facility.

Decision Table System Can Cut Cobol Programming Time 75%

GLENSIDE, Pa. – Users "can realize 75% savings" on program design, debugging, and maintenance of Cobol programs with a new system. The system is based on the use of decision tables, one of the newer tools to improve program conciseness and simplify program maintenance.

Developed by Information Systems Leasing Corp. and called Detoc (Decision Table to Cobol Processor), the program enables the user to intersperse standard Cobol procedure statements with decision tables in a single program.

This ability provides features unavailable under other decision table techniques by allowing the user to manipulate the organization of his program directly, rather than after the program has been constructed and assembled.

The system will work on any third generation machine and requires no translation step. This decision table approach allows the program to use involved logic and yet still be simple to understand and maintain. Debugging is simplified by the conciseness of the source coding, making it easier to spot the error. Decision tables force the user to write modular programs, which further simplifies changes.

Decision tables will produce object coding as efficiently as careful manual techniques, according to the company. Tables also optimize the execution times because they always take the shortest path through the program. Duplicate coding is eliminated by the use of a single decision table which can be accessed from anywhere within the program.

Detoc requires the same memory as the Cobol compiler, 32K. The system is operational on the B5500, S/360-32K, and S/360-65K. A 32K system requires one disk, the 65K system, none. Both 360 versions run under DOS. The system sells for $12,000 and carries a one year warranty.

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COMPUTERWORLD financial

Stockholders OK Merger Of Memorex, Technicolor

SANTA CLARA, Calif. – Stockholders in Memorex and Technicolor have approved the merger of the companies into a new company to be called Memorex Corp. Completion of the merger now depends on receipt of a tax ruling from the Internal Revenue Service that the merger will constitute a tax free reorganization, a Memorex spokesman said.

Under the agreement first announced in July [CW, Aug. 7], Technicolor will spin off its nonphotographic businesses to its stockholders.

Under the terms of the proposed merger, each share of Memorex common stock will become one share of Memorex Corp. (Delaware), and each holder of Technicolor common stock will receive one-fourth share of Memorex common stock and one-fifth share of Memorex cumulative convertible preferred stock, $4 Series A.

Exchanges Extend Closings, Schedule Shorter Sessions

NEW YORK – Paperwork, in an age of computers, is still causing disruption in the stock market.

The New York and American exchanges have extended until New Year's Day their Wednesday closings, which were instituted June 12 as an emergency step to give brokerage house clerical workers more time to combat the paperwork backlog that had accumulated because of the heavy trading volume.

Starting Jan. 2, barring an unforeseen major increase in trading volume, the exchanges will shorten their trading sessions by 90 minutes, and will be open from 10 a.m. (EST) to 2 p.m., five days a week.

Many brokers favor an end to the current four day week and restoration of "continuity" to the market.

The Securities and Exchange Commission, facing a record backlog of registration statements for securities issues, has announced new procedures for reviewing them.

Statements which are "so poorly prepared or otherwise present problems so serious" that the SEC staff simply can't determine their truth, completeness, or accuracy, will be returned to the applicant with a notice that the SEC reserves the right to order legal procedures against the company if the statement should become effective in its present form.

It would appear that an increase in statements of this type has caused the SEC's backlog to rise to a record 852 and its usual 20 day review period to increase to 60 days. The SEC noted that in the year ended June 30, some 2473 registration statements were filed, up 60% from 1543 the previous year. A substantial part of this increase came from companies that haven't publicly issued securities before, and who presumably are more apt to make errors in their statements.

"It's the issuer, not the SEC, that investors should turn to for verification of prospectuses," according to Charles E. Shreve, director of the agency's Corporate Finance Division.

Acquisitions

Planning Research to Buy Two Engineering Companies

LOS ANGELES – Planning Research Corp., a systems analysis and computer design company, has announced a preliminary agreement to acquire Quinton Engineers, Ltd., an international architect and engineering firm, and Budlong & Associates, mechanical and electrical engineering consultants. The agreement must be approved by Quinton shareholders and appropriate regulatory agencies. Terms were not disclosed.

Datatab, Inc. to Acquire Associated Data Service

NEW YORK – Datatab, Inc. a computer service organization, announced it has contracted to acquire Associated Data Service, Anaheim, Calif. a computerized letter company, for up to 24,000 shares of Datatab stock, subject to approval of legal matters and the issuance of a permit by the California Commissioner of Corporations. Under the proposed agreement, Associated Data will become a wholly owned subsidiary and be renamed Datatab-Los Angeles, Inc. The company will continue to be administered by president William Below and vice president William A. Butcher.

Gerber Scientific, Beta Co. Form Partnership

HARTFORD, Conn. – Gerber Scientific Instrument Co., an automatic drafting systems manufacturer, has announced a partnership with Beta Company, Ltd., Beer-Sheba, Israel. Terms were not disclosed.

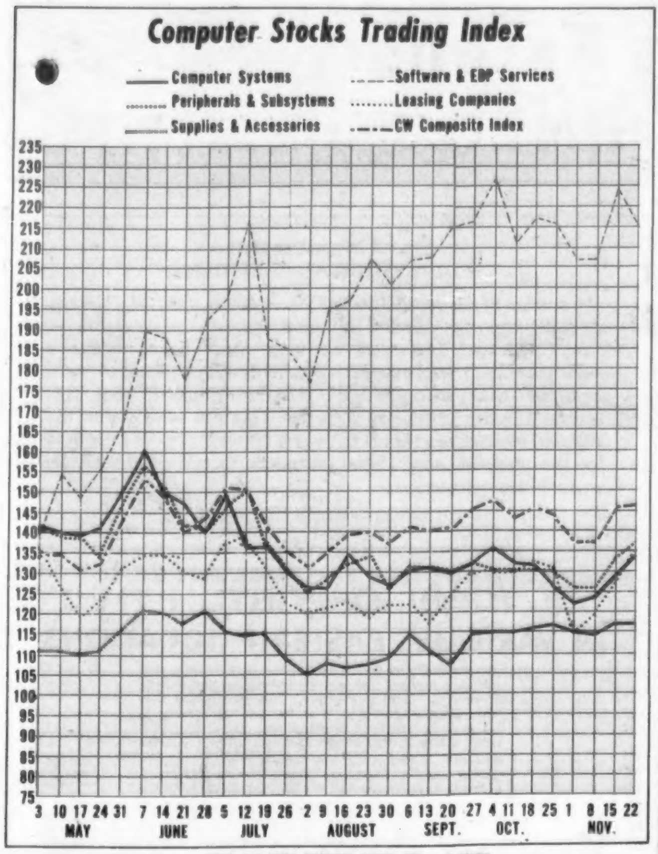
CalComp to Acquire Century Data Systems

ANAHEIM, Calif. – California Computer Products, Inc., a graphic display supplier, has announced an agreement in principle with Century Data Systems, a computer peripherals company, whereby CalComp will invest $1 million in Century common stock and debentures to obtain options for possible acquisition.

Inter-Continental Computing Buys Citizens Credit Exchange

SHAWNEE MISSION, Kan. – Inter-Continental Computing, Inc. has announced acquisition of Citizens Credit Exchange of San Bernardino, Calif. Terms were not disclosed.

Citizens Credit, an operation servicing computerized credit grantors, will become a subsidiary of Inter-Continental's [illegible] American Credit Services, Inc.


Computer Stocks Trading Index

BASE FOR EACH TRADING INDEX: 100 as of 3/1/68

Small Gains Made By EDP Issues

The stock market reflected the uncertainty of the outcome of the international monetary crisis during the week ended Nov. 22. Brokers generally feel that President DeGaulle's efforts to resist devaluation of the franc will put pressure on U.S. stock prices in the near term, but they still see the long term outlook as bright.

The *Computerworld* composite stock average moved up slightly, (1 point or 0.68%) to 147. All of the major indexes registered similarly small gains. The Dow Jones industrial average rose 1.18 (0.12%) to 967.06. Standard & Poor's industrial average rose 0.61 (0.53%) to 115.67; the New York Stock Exchange composite average, 0.44 (0.74%) to 60.09; the American Stock exchange price index, 52 cents (1.66%) to $31.80; and the N.Q.B. over-the-counter industrial average, 3.60 (0.89%) to 409.78.

Gainers outnumbered losers among *Computerworld* listed stocks, but only by a small margin. Fifty-three stocks rose, 46 fell, and 4 were unchanged. The previous week, 73 were up, 25 were down, and 5 were unchanged.

Six *Computerworld* listed stocks closed at new highs for the year.

14 Make Big Gains

Gains of 10% or more were made by 14 stocks, compared with 22 in the previous week. Two of the 14 rose 15% or more compared with nine the previous week.

Control Data made the biggest gain in the Computer Systems sector. CDC was up 12-1/2 (8.82%) to 154-1/4. Collins Radio's 1-5/8 point (2.44%) loss was the biggest in the sector. The sector index rose 5 points (3.8[illegible]) to close at 134.

The Peripherals & Subsystems sector, with its index up 3 points (2.26%), to 136, featured five large gainers. Fabri-Tek was up 1-3/4 (14.14%); Data Products, which announced a $3.5 million order from Scientific Control, 2-1/2 (13.89%); Mohawk Data, which expects a sharp rise in profit and volume for fiscal 1969, 9-1/4 (13.31%); Alphanumeric, 6-1/2 (11.61%); and Electronic Memories, 5-3/4 (11.22%).

Wallace Business Forms' 5-3/4 point (15.33%) drop was the largest among *Computerworld* listed stocks. The stock had gained 5-1/2 (17.19%) in the previous week. Three other stocks in the Supplies & Accessories sector, whose index rose 1 point (0.86%), made large gains. Wabash Magnetics was up 2-1/2 (12.42%); Adams-Millis, 2-1/4 (11.69%); and Barry Wright, 2-7/8 (10.75%).

United Data Centers rose 2-1/2 (25.50%) to lead all gainers. During the week it announced a $13.4 million agreement to combine with Computer Servicenters. U.S. Time Sharing, up 3-1/2 (18.42%) and Aries, up 2 (13.56%) were the other big gainers in the Software & EDP Services sector. Advanced Computer Techniques, down 2 (12.50%), and Brandon Applied Systems, down 2 (12.18%), suffered the largest losses in the sector, whose index fell 9 points (4.02%).

The Leasing sector, with its index up 1 point (0.68%), featured one large loss – Boothe Computer, down 5 (10.40%), and three big gains – Data Processing Financial & General, whose stock split during the week, up 7-3/8 (14.05%); Greyhound, up 3-1/2 (13.33%); and Cybertronics, up 1-3/8 (11.11%).

COMPUTER STOCKS: TRADING SUMMARY

WEEK ENDING NOV. 22, 1968

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	COMPUTER SYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	163 3/8	246—157	246 1/2	* Burroughs	+ 14 1/2	+ 6.25	+ 50.88
NYSE	67 3/4	110— 54	64 7/8	Collins Radio	— 1 5/8	— 2.44	— 4.24
NYSE	101 1/2	174— 95	154 1/4	* Control Data	+ 12 1/2	+ 8.82	+ 51.97
AMSE	102	160— 95	149 3/4	* Digital Equipment	+ 1/4	+ 0.17	+ 46.81
NYSE	87 1/4	100— 81	97 7/8	General Electric	+ 1 1/8	+ 1.16	+ 12.18
NYSE	60	91— 59	90	Hewlett-Packard	+ 3	+ 3.45	+ 50.00
NYSE	93 1/8	144— 89	126	* Honeywell	+ 6 7/8	+ 5.77	+ 35.30
NYSE	288 1/2	375—280	327 3/4	* IBM	+ 3/4	+ 0.23	+ 13.60
NYSE	103 7/8	153— 40	120 3/4	* National Cash Register	— 1	— 0.82	+ 16.25
NYSE	46 7/8	55— 44	47 1/8	RCA	— 3/8	— 0.79	+ 0.53
NYSE	39 1/8	53— 34	47 3/4	Raytheon	— 7/8	— 1.80	+ 22.04
OTC	22 1/2	66— 20	35	* Scientific Controls Corp	— —	— —	+ 55.55
NYSE	78 3/4	114— 72	95 1/4	* Scientific Data	+ 5 1/4	+ 5.83	+ 20.95
NYSE	45	63— 42	48 1/4	* Sperry Rand	+ 2 1/2	+ 5.46	+ 7.22
AMSE	22 1/2	39— 20	31 1/2	* Systems Engineering Labs	+ 2 1/8	+ 7.23	+ 40.00

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	PERIPHERALS & SUBSYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	58 3/8	91— 52	82 3/8	Addressograph-Multigraph	— 5/8	— 0.75	+ 41.11
OTC	21	85— 45	62 1/2	Alphanumeric	+ 6 1/2	+ 11.61	+197.62
NYSE	29	38— 26	37 3/4	Ampex	+ 1 3/8	+ 3.78	+ 30.17
OTC	17 1/4	27— 14	15	Bolt, Beranek & Newman, Inc.	+ 1/4	+ 1.69	— 13.05
NYSE	13 1/2	20— 12	16 3/8	Bunker-Ramo	— 1	— 5.76	+ 21.30
AMSE	32 1/8	50— 27	38 3/8	* Calcomp	— 3/8	— 0.97	+ 19.45
OTC	24 1/2	49— 20	39	Cognitronics	+ 2	+ 5.40	+ 59.18
OTC	12	18— 10	16 1/8	Computer Equipment	+ 7/8	+ 5.74	+ 34.37
AMSE	15 1/4	23— 13	20 1/2	* Data Products	+ 2 1/2	+ 13.89	+ 34.43
OTC	19 1/4	27— 16	22	* Digitronics	— 1/2	— 2.22	+ 14.29
OTC	39	57— 32	57	* Electronic Memories	+ 5 3/4	+ 11.22	+ 46.15
OTC	10	29— 9	14 1/8	* Fabri-Tek	+ 1 3/4	+ 14.14	+ 41.25
OTC	34	35— 14	29 3/4	Gerber Scientific	+ 1 1/4	+ 4.38	— 12.50
OTC	12 1/2	26— 10	23	Information Displays	+ 1 1/4	+ 5.75	+ 84.00
AMSE	16 7/8	52— 14	25	Milgo Electronics	— 2	— 7.41	+ 48.15
AMSE	57 1/2	108— 54	78 3/4	* Mohawk Data Sciences	+ 9 1/4	+ 13.31	+ 36.97
OTC	74	145— 71	122	* Optical Scanning Corp.	— 4	— 3.18	+ 64.86
OTC	18	42— 16	31 1/2	Photon	— 1 1/2	— 4.55	+ 75.00
AMSE	25 5/8	38— 12	30 5/8	* Potter Instrument	— 2 1/4	— 6.85	+ 19.51
OTC	40 1/4	99— 38	77 1/2	* Recognition Equipment Corp.	— 1 1/2	— 1.90	+ 92.55
AMSE	16	29— 14	22 1/2	Rixon Electronics	— 1 3/8	— 5.76	+ 40.62
NYSE	46 1/8	66— 42	60 7/8	Sanders	— 5/8	— 1.02	+ 31.98
OTC	47	155— 53	87	Scan-Data	+ 7	+ 8.75	+ 85.11
OTC	40 1/2	51— 35	38	* Tally Corp.	— 2	— 5.00	— 6.17
NYSE	242 1/4	321—229	271 3/4	Xerox	— 1 1/4	— 0.46	+ 12.18

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	SUPPLIES & ACCESSORIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	48 1/2	64— 37	45	* Acme Visible	+ 1/2	+ 1.12	— 7.22
NYSE	20 1/2	32— 18	21 1/2	Adams-Millis	+ 2 1/4	+ 11.69	+ 4.88
OTC	13 5/8	22— 13	20 3/4	* Baltimore Business Forms	+ 1 1/2	+ 7.79	+ 52.29
AMSE	27	44— 21	29 5/8	* Barry Wright	+ 2 7/8	+ 10.75	+ 9.72
OTC	31 1/4	40— 26	36 1/4	Data Documents	+ 1/4	+ 0.69	+ 15.99
OTC	27 1/4	39— 26	39 1/2	* Ennis Business Forms	+ 1 1/4	+ 3.26	+ 44.95
NYSE	84 1/8	119— 81	110 1/4	* 3M Company	+ 1 1/4	+ 1.15	+ 31.05
NYSE	58	93— 48	86 1/2	* Memorex	+ 4 3/4	+ 5.81	+ 49.14
OTC	27 1/4	32— 25	28 7/8	* Moore Business Forms	— 5/8	— 2.12	+ 5.96
NYSE	57 1/4	85— 47	85	Nashua Corp	+ 5 1/4	+ 6.58	+ 48.47
OTC	31 1/4	56— 40	47	Reynolds & Reynolds	— —	— —	+ 50.40
OTC	34 1/2	35— 24	25 3/4	* Standard Register	— 1	— 3.74	— 24.82
NYSE	37 3/4	44— 30	34	* Uarco	— 1/4	— 0.73	— 9.93
AMSE	14 1/4	23— 13	22 5/8	Wabash Magnetics	+ 2 1/2	+ 12.42	+ 58.77
OTC	25 3/4	37— 24	31 3/4	* Wallace Business Forms	— 5 3/4	— 15.33	+ 23.30

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	SOFTWARE & EDP SERVICES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	7 1/2	25— 7	14	Advanced Computer Techniques	— 2	— 12.50	+ 86.66
OTC	17	36— 14	35	* Applied Data Research	— 1	— 2.78	+105.88
OTC	15 1/2	23— 13	16 3/4	* Aries	+ 2	+ 13.56	+ 8.06
AMSE	47	70— 42	69 7/8	Automatic Data Processing	+ 5	+ 7.70	+ 48.67
OTC	4	19— 4	14 1/2	Automation Sciences	— 1/4	— 1.70	+262.50
OTC	4 1/2	23— 3	14 1/2	* Brandon Applied Systems	— 2	— 12.18	+222.22
AMSE	22 7/8	43— 19	21	Computer Applications	— 1/4	— 1.18	— 8.20
OTC	5	15— 7	11 1/4	Computer Environments	+ 1/4	+ 2.27	+125.00
OTC	30	64— 24	58	Computer Network	— —	— —	+ 93.33
AMSE	40	64— 36	59 1/2	* Computer Sciences	+ 1/8	+ 0.21	+ 48.75
OTC	39	62— 28	35 1/2	* Computer Usage	— 2	— 5.34	— 8.97
AMSE	36 1/2	81— 36	80	* Computing & Software	— 1	— 1.24	+119.18
OTC	12 1/2	23— 5	22	Datamation Services	— 1	— 4.35	+ 76.00
OTC	14 1/2	22— 10	20	Datatab	+ 1 1/2	+ 8.11	+ 37.93
OTC	12 1/2	20— 9	11 3/4	* Digitek	+ 1/4	+ 2.17	— 6.00
AMSE	38 3/8	52— 26	31	Electronic Computer Prog. Inst.	+ 1 5/8	+ 5.53	— 19.22
OTC	35	68— 32	66	* Informatics	+ 1	+ 1.54	+ 88.56
OTC	21	28— 4	20	Matrix Corp.	+ 1	+ 5.26	— 4.73
OTC	5	28— 4	24	* National Computer Analysts	— 2 1/2	— 9.44	+380.00
AMSE	31	59— 28	59 1/8	Planning Research	— 3/8	— 0.67	+ 90.72
OTC	a13 1/4	a15— 12	12 1/4	Programming & Systems	— 1	— 7.55	— 7.55
OTC	9	15— 8	10 1/2	Software Systems	— 1/4	— 2.33	+ 16.67
OTC	a29 1/2	a29— 8	27	Strategic Systems	— —	— —	— 8.48
OTC	20 1/2	22— 11	12 1/4	TBS Computing Centers, Inc.	+ 1/2	+ 4.25	— 40.24
OTC	a12	a12— 10	12 1/2	United Data Centers	+ 2 1/2	+ 25.50	+ 4.17
OTC	63	182— 57	184	University Computing	+ 2	+ 1.10	+192.06
OTC	a20	36— 20	31 1/4	URS Systems Corp.	— 1 1/4	— 3.85	+ 56.25
OTC	a30	a30— 22	22 1/2	U.S. Time-Sharing	+ 3 1/2	+ 18.42	— 25.00

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	LEASING COMPANIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	18	55— 18	44	Boothe Computer	— 5	— 10.40	+144.44
OTC	4 1/4	24— 4	17 1/2	Computer Exchange	— 1/2	— 2.78	+311.76
AMSE	25 1/8	36— 21	23 1/4	* Computer Leasing	— 1 1/8	— 4.62	+ 13.00
OTC	12 1/4	19— 11	13 3/4	* Cyber-Tronics	+ 1 3/8	+ 11.11	+ 12.24
AMSE	53 1/4	92— 44	68	* Data Proc. Financial & General	+ 7 3/8	+ 14.05	+ 27.70
OTC	12 1/2	17— 8	8 1/4	Datronic Rental	— 1/2	— 5.72	— 34.00
OTC	20	59— 18	49 3/4	Dearborn Computer	+ 3/4	+ 1.53	+148.75
OTC	13 1/4	19— 12	13 3/4	* DPA, Inc.	— 5/8	— 4.35	+ 3.77
AMSE	28 3/4	43— 25	29 3/4	* Greyhound Computer	+ 3 1/2	+ 13.33	+ 3.48
AMSE	28 1/8	69— 36	42 5/8	Granite Equipment Leasing	— 7/8	— 2.01	+ 51.55
AMSE	49	136— 41	136	* Leasco	+ 10	+ 7.93	+177.55
OTC	5	14— 5	8 1/4	Lectro Computer Leasing	— 1/2	— 5.73	+ 65.00
AMSE	30 3/4	66— 27	56	* Levin-Townsend Computer Corp.	— 5/8	— 1.15	+ 82.11
OTC	10 1/2	16— 8	8	* LMC Data, Inc.	— 1/4	— 3.10	— 23.81
OTC	10 7/8	16— 10	14 3/4	* Management Assistance	+ 3/4	+ 5.36	+ 35.63
AMSE	41 5/8	53— 25	35 1/2	National Equip. Rental	— 1 7/8	— 5.02	— 14.72
OTC	a13 1/4	14— 8	10 1/2	NCC Leasing	— 3/4	— 6.67	— 20.76
AMSE	38	64— 35	44	* Randolph Computer Corp.	+ 2 1/4	+ 5.39	+ 15.74
OTC	10 1/2	53— 10	46 1/2	System Capital Corp.	— 1/2	— 1.10	+342.85
AMSE	10 7/8	25— 10	25 5/8	U.S. Leasing	+ 1 5/8	+ 6.77	+135.63

a—Since 10/18/68 *Companies included in Computerworld's stock trading index for each sector.

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Court Overrules Patent Office, Qualifies Ban

(Continued from Page 1)

computer programs to other courts. The brief said that even if the Prater and Wei patent should be granted, it was not necessary at this point to investigate legally the status of computer program patentability.

It is also known that a "friend of the court" brief from IBM did not arrive in time to be considered by the court.

Judge's Death

Judge Smith, who wrote the opinion for the majority, died last week, thus changing the make up of the court. While the decision had been unanimous, the chief judge said that he was concurring simply to allow the decision to go forward quickly and that he was not fully cognizant of the details. In his concurring opinion, he pointed out that many people had been expecting this for a long time and anticipated that it would, in fact, be a landmark case. He also paid tribute to Judge Smith for continuing to work against the advice of his doctors.

(Excerpts from the late Judge Smith's opinion, and an editorial tribute appear on page 4.)

Moore Is Named Chairman of TRS

NEW YORK – Thomas W. Moore, formerly president of the American Broadcasting Co. television network, has been named chairman and chief executive officer of Ticket Reservation Systems, Inc.

Edgar M. Bronfman, who formerly held these posts, has become chairman of the executive committee.

John C. Quinn, Jr., continues as president and chief operating officer.

TRS is developing a network of computerized box offices to sell reserved seat tickets to Broadway shows, sports events, motion pictures, and other entertainment attractions through remote terminals.

POSITION ANNOUNCEMENTS

DATA PROCESSING SERVICE BUREAU PRESIDENT

A company is being formed to operate a service bureau specializing in the apparel industry. Substantial accounts are now lined up. The man we seek must have necessary qualifications, be an expert in the field, with abilities to build an organization in operations, programming and sales. This will be a public company with participation available to the selected executive. This is truly the opportunity of a lifetime for the qualified man. Send complete record of experience and achievement to:

Computerworld Box 4901

18 NEW OPPORTUNITIES IN VARIOUS EASTERN LOCATIONS

New division being formed by national corp. entering data processing business with strong emphasis on time sharing. URGENTLY NEEDED: Systems programmers with two years experience in Cobol or Fortran with ability to communicate clearly in technical areas to become: SYSTEMS SUPPORT REPRESENTATIVES to work with the sales staff in identifying new applications and providing systems support. Salary commensurate with experience. Excellent growth potential in a professional environment.

Send resume in confidence to: George Sakol

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1411 Walnut Street Philadelphia, Pennsylvania 19102

EXPERIENCED DATA PROCESSING SALESMEN

Our firm which offers a new, dynamic data processing service invites inquiries from successful salesmen for metropolitan New York and upstate New York areas. We offer an attractive compensation plan based on salary plus commission with no limitation on earnings. Our employees know of this ad and qualified candidates may reply in complete confidence to:

Box 4902

COMPUTER OPPORTUNITIES
in Florida

Expansion of our Data Processing Department has created several opportunities for:

SYSTEMS ANALYSTS
PROGRAMMERS – all levels
OPERATIONS SUPERVISORS
EXPERIENCED OPERATORS

I.B.M. System 360 disc/tape experience extremely helpful. Competitive fringe benefits plus liberal flying privilege.

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COMPUTER INDUSTRY SAVANT

A marketing service organization specializing in the computer industry – the International Data Corporation – is searching for a rare individual. This person must understand the computer user environment and be able to design effective strategies for analyzing and impacting this marketplace. IDC's clients offer a full range of products and services to computer users, and the person we want must be able to analyze the marketing needs of the clients and relate these needs to IDC's services and capabilities. In performing this role, IDC's representatives are constantly involved in the "next generation" of products and services within the computer industry.

The position requires only occasional travel, and compensation is designed to reflect achievement. If you are the savant who knows the computer user environment and seeks the challenge of helping to implement new strategies within the marketplace, we want to talk with you. Write or call in confidence:

IDC
INTERNATIONAL DATA CORPORATION
60 AUSTIN STREET
NEWTONVILLE, MASSACHUSETTS

M.F. Eveleth, Jr.
Vice President–Marketing
(617) 969-4020

POSITION ANNOUNCEMENTS

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Bozeman, Montana

Systems Analyst – Programmers

IN – Computing Center
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CONTACT –
John C. Miller, Director
Computing Center
Montana State University
Bozeman, Montana 59715

TRUST OPERATIONS OFFICER

Rapidly growing and aggressive trust department of Utah bank desires a man to head its operations division. Excellent opportunity in one of largest banks in Rocky Mountain area. Must have experience in trust operations and be familiar with computer applicaitons in trust work. Salary based on qualifications. Send resume and salary expected to:

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We are located in a pleasant city of approximately 35,000 population on the scenic shores of beautiful Lake Michigan about 90 miles north of Milwaukee. This community offers modern shopping centers, an advanced school system, modest living costs and some of the finest recreational facilities available. Hunt, fish, swim or relax on the air conditioned beaches which are just minutes away from your home. This is the most progressive area in the Midwest.

The Manitowoc Company, along with its operating divisions and subsidiaries, has a total employment of over 2,000 and a sales volume in excess of $50 million. Primary products are crawler cranes and shovels.

Qualified candidates will have a minimum of one experience in third generation computers and the ability to work with either COBOL, BAL or PL-1 languages. A degree in engineering, mathematics or business economics is desirable but not essential.

Please send detailed resume along with salary requirements to:

Mr. C.A. Shaw
The Manitowoc Company Inc.
500 South 16th Street
Manitowoc, Wisconsin 54220

All replies will be held in strict confidence.

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For a large electronics growth company headquartered in California with divisions in the U.S. and abroad. This position reports to the Controller and includes responsibility for corporate computer systems, programming, and operations (third generation equipment), as well as corporate systems and procedures. We want an experienced manager who is oriented towards achieving user satisfaction, who can plan and execute efficient and economic data processing and systems functions and who can communicate effectively with all levels of management. We prefer a college graduate with heavy experience in manufacturing applications.

Please send resume and letter explaining your qualifications for this key job to Box 4803
We are an equal opportunity employer.

SUPERVISOR SOFTWARE SYSTEMS

An idea man with supervisory experience is needed to provide technical leadership to a small group of system programmers. You will be responsible for conceptual design and implementation of interactive software systems which involve real-time data acquisition, conversational capability, and development of problem oriented languages. Bachelors Degree plus extensive experience in systems analysis desirable. U.S. citizenship required. Candidates are invited to submit their resumes to:

Personnel Officer, Dept. H-43 NASA, Ames Research Center
Moffett Field, California 94035
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RCA

opportunities for SENIOR COMPILER DESIGNERS

In Palo Alto, California

RCA's full-scale marketing effort to provide Spectra 70-assisted instructional systems for the nation's schools is your opportunity to advance your career while contributing to the upgrading of simultaneous individual instruction.

Immediate openings exist for Senior Compiler Designers with a college degree and 4 to 8 years programming experience in compiler development and implementation. Previous working knowledge with BASIC, ALGOL, FORTRAN, JOVIAL or other syntax-directed languages is a prerequisite. You will be responsible for design and coding syntax analysis, I/O and file commands, verbs processors, systems library and command processors.

If you have these qualifications, we would like to discuss our goals and your career objectives. We are an equal opportunity employer.

For an interview, send your resume to: Mr. A. J. Tasca, RCA Instructional Systems, 530 University Avenue, Palo Alto, California 94301

RCA

MANAGER SOFTWARE DEVELOPMENT

A rare opportunity exists to assume responsibility for all Product Software Development at Foxboro, a world leader in the design, development and marketing of instrumentation and advanced digital systems for industrial process and energy control.

The individual we seek will have five to ten years of real time programming and software development experience together with a work history of steadily increasing responsibility, including project leadership. An advanced degree is preferred in mathematics or engineering, with formal education in the computer sciences and related fields.

The salary and benefits associated with this assignment reflect our awareness of this position's importance to Foxboro's continued future growth. Interested, qualified candidates are invited to make confidential inquiry by telephone or by resume to Mr. Robert Ash, Professional Placement Supervisor. Call collect (617) 543-8750 or write The Central Recruiting Office, The Foxboro Company, Dept. C124, Neponset Avenue, Foxboro, Massachusetts 02035. Look into other career building opportunities with Foxboro, an equal opportunity employer.

FOXBORO®

Bank Terminal Show

IBM's new banking terminal, the 2980, was shown at the recent Savings and Loan League Convention in Miami Beach. The 2980, available on special order, comes in three models which can be tailored for various teller and administrative functions. The teller model above has chutes for posting passbooks and printing customer receipts and a journal tape for recording transactions.

smtwtfs calendar smtwtfs

Dec. 2-4, New York – Second Conference on Applications of Simulation. Contact: Julian Reitman, Modern-United Aircraft Corp., Norwalk, Conn. 06856.

Dec. 2-4, Chicago – Quality Control Management. Contact: Advanced Management Research, Inc., 1004 Walnut St., Philadelphia, Pa. 19103.

Dec. 9-11, San Francisco – Fall Joint Computer Conference. Contact: Afips, 345 E. 47th St., New York, N.Y. 10017.

Dec. 12-13, Palo Alto, Calif. – Computer Users Group (Tug). Contact: William P. Berry, Philco-Ford Communications and Electronics Div., 3900 Welsh Rd., Willow Grove, Pa.

Phone Companies Ask Court To Review Carterfone Case

By a CW Staff Writer

NEW YORK – The American Telephone & Telegraph Co. and General Telephone & Electronics Co. have filed suit in the Second U.S. Circuit Court of Appeals here to have the Federal Communication Commission's June Carterfone ruling brought up for review.

However, the telephone companies did not state what portions of the Carterfone decision – which declared that the foreign attachment ban was unlawful – they objected to. Under new rules, they simply filed one paragraph petitions Nov. 12, listing the docket numbers involved.

Carterfone Not Affected

Not affected for the moment was the Carterfone, used for the acoustic connection of private mobile telephone systems to the public telephone network. Their use became permissible Nov. 1.

A 45% interest in Carterfone Communications Corp., the small Dallas based company that successfully challenged AT&T's rules barring most customer owned equipment from the public telephone system, recently was bought by Data Automation Co., a computer service company. The company also has an option to buy another 6%, which would give it control of Carterfone.

Data Automation said it paid "in the middle six figures" for the 45% interest, and that its option for the additional 6% interest was based on certain undisclosed terms and conditions.

80 Day Waiting Period

Under the new rules, the telephone companies have until Dec. 23 to notify the court of the portions of the hearing record that they wish printed for use in the appeal (they could ask that it all be printed) and then until Jan. 31 before they must indicate the portions of the Carterfone case they actually wish to appeal.

Prior to the Nov. 12 filing, the FCC had agreed to an AT&T request that implementation of the new tariffs filed in September and October be delayed from Nov. 1 until Jan. 1 to allow for coordination with what AT&T described as additional, more permissive tariffs planned for Jan. 1.

The FCC is currently expected to rule on all the new tariffs by the end of the year. So the telephone companies should know the FCC's position long before having to divulge their own.

Interfaces Still Insisted Upon

In spite of the relaxed nature of the newly filed tariffs permitting a wide variety of customer owned devices to be connected to the public telephone network, the telephone companies still are maintaining that they must provide an interface device currently scheduled to rent for $2 a month and all network control signaling [dial] units.

Keystone Names Sales Agent for New Disk Drive

Special to Computerworld

PHOENIX – National Computing Industries here has signed an exclusive marketing agreement covering the domestic and international sales of computer peripherals manufactured by Linnell Electronics, a member of the Comstock-Keystone Computer Group.

At the same time, the firm announced that a 2311-compatible disk drive costing around $15,000 (as compared with the IBM price of $25,500) would be the first product. It is scheduled for delivery "early in the first quarter," according to G.L. Work of NCI. The drive is expected to have approximately the same access times as the IBM system.

Further products are expected to be released later, but details of these were not available.

No details of any possible extension of the agreement to cover other Comstock-Keystone Computer Group products were available.

NOTICE TO ADVERTISERS

Computerworld's weekly paid circulation is now over 25,000 – 66% greater than the 15,000 circulation upon which current advertising rates are based. By January 1, 1969, we expect paid circulation to exceed 30,000 – double the current rate base.

To reflect rising costs associated with this increased circulation, *Computerworld* announces new advertising rates effective January 1, 1969. The new rates, averaging a 30% increase, are modest, considering the great growth in the circulation base, higher postal charges, higher labor charges, etc.

Computerworld now offers the lowest cost per 1,000 of any computer-oriented publication. Even with the new rates in effect, the cost per 1,000 is still the lowest available.

Additional information on the new rates can be obtained by contacting Neal Wilder, National Sales Manager, Computerworld, 60 Austin St., Newton, Mass. 02160, (6 332-5606, or any regional sales office.